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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,571	04/24/2001	Shinji Tsujio	A32701-A -072561.0154	6832

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-15

Office Action Summary

Application No.

09/841,571

Applicant(s)

TSUJIO, SHINJI

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/400,628.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/29/02 has been entered.

2. All outstanding rejections except for those described below are overcome by applicants' amendment filed 10/29/02.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshioka et al. (U.S. 5,621,021).

Yoshioka et al. disclose erasable aqueous ink that contains film-forming resin such as styrene-butadiene and 5-30% colorant having particle diameter in the range of 2-10 μm . It is disclosed that the colorant is a colored resin formed from pigment such as Pigment Black 1,

Art Unit: 1714

Pigment Green 7, and Pigment Blue 15 (col.2, lines 53-56, col.3, lines 39-62, and col.4, lines 1-14).

Given the claim language, i.e. "not more than 1.6%" and not more than 0.5%", it is clear that in one embodiment, the present claims encompass colorant which has mean particle size of 2-7 μm with 0% of the particles having a size of not more than 1.8 μm and 0% of the particles having size of not less than 7 μm . That is, there are no particles present that have particle size less than 2 μm or greater than 7 μm .

Given that Yoshioka et al. disclose colorant that has particle diameter of 2-10 μm which entirely overlaps the presently claimed particle size range, it is clear that Yoshioka et al. meet the above-described requirements of the present claims.

In light of the above, it is clear that Yoshioka et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1714

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1, 4, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. (U.S. 5,621,021).

Yoshioka et al. disclose erasable aqueous ink that contains film-forming resin such as styrene-butadiene and 5-30% colorant having particle diameter in the range of 2-10 μm . It is disclosed that the colorant is a colored resin formed from pigment such as Pigment Black 1, Pigment Green 7, and Pigment Blue 15 (col.2, lines 53-56, col.3, lines 39-62, and col.4, lines 1-14).

The difference between Yoshioka et al. and the present claimed invention is the requirement in the claims that particles having a size of not more than 1.8 μm account for not more than 1.6% by weight of the colorant and that particles having a size of not less than 7 μm account for not more than 0.5% by weight of the colorant.

However, Yoshioka et al. do disclose that if the particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability (col.3, lines 50-51) while if the particle diameter is too large sharp color is not obtained (col.3, lines 53-55). Thus, it therefore would have been obvious to one of ordinary skill in the art to control the particle size of the colorant to particle size distribution, including that presently claimed, so that the ink possesses good erasability and sharp color.

As further evidence to support the above position that it is within the skill level of one of ordinary skill in the art to control the colorant particle size within a particular range with few, if

any, particles above or below this range, i.e. narrow size distribution, attention is drawn to a state-of-the-art reference, namely Gore (U.S. 5,976,232), which discloses that producing ink with a narrow size distribution of colorant particles improves the stability of the ink (col.2, lines 6-8).

In light of the motivation for controlling the size of colorant particles disclosed by Yoshioka et al. as well as Gore, it therefore would have been obvious to one of ordinary skill in the art to control the size of the colorant particles so that few, if any, particles are distributed below 2 μm and above 7 μm , as presently claimed, in order to produce a stable ink with good erasability and color development, and thereby arrive at the claimed invention.

7. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. as applied to claims 1, 4, and 11-13 above, and further in view of either Enami (U.S. 4,471,079) or Koyama (U.S. 5,977,211).

The difference between Yoshioka et al. and the present claimed invention is the requirement in the claims of a water-soluble polymer such as polysaccharide.

Yoshioka et al. disclose that the ink further contains additives, which are used in usual writing ink compositions, but does not explicitly disclose the use of water-soluble polymer.

Enami, which is drawn to erasable aqueous ink composition, discloses the use of 0.1-15% water-soluble polymer including polysaccharides such as carboxymethyl cellulose and guar gum (col.9, lines 6 and 10) in order to adjust the viscosity of the ink (col.8, lines 64-65).

Alternatively, Koyama, which is also drawn to erasable aqueous ink, disclose the use of 0.2-5% water-soluble polymers such as guar gum or xanthan gum (col.3, line 55) in order to

Art Unit: 1714

control the permeation of the ink into the paper and further enhance the erasability of the ink (col.3, lines 43-46).

In light of the motivation for using water-soluble polymer disclosed by either Enami or Koyama as described above, it therefore would have been obvious to one of ordinary skill in the art to use such a polymer in the ink of Yoshioka et al. in order to produce an ink with suitable viscosity and enhanced erasability, and thereby arrive at the claimed invention.

8. Claims 1, 4, 9-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzukiwa et al. (U.S. 5,120,359) in view of Yoshioka et al. (U.S. 5,621,021).

Uzukiwa et al. disclose an erasable aqueous ink suitable for use in ballpoint pens wherein the ink has viscosity of 100-300 mPa s measured using an ELD viscometer (3⁰ cone, 0.5 rpm, 20⁰ C) and wherein the ink comprises film-forming resin such as styrene-butadiene and 10-70% colorant such as Pigment Black 1, Pigment Green 2, and Pigment Blue 15 (col.2, lines 15-25, col.3, lines 61-62, col.4, line 41, col.12, lines 30-33, and Figure 1).

The difference between Uzukiwa et al. and the present claimed invention is the requirement in the claims of the particle size distribution of the colorant.

Uzukiwa et al. broadly disclose that the colorant has mean particle size of 0.1-10 μ m (col.3, lines 49-51).

Yoshioka et al., which is drawn to erasable aqueous ink, disclose that if the colorant particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability (col.3, lines 50-51) while if the particle diameter is too large sharp color is not obtained (col.3, lines 53-55). Thus, it therefore would have been obvious to one of ordinary skill

in the art to control the particle size of the colorant of Uzukiwa et al. to particle size distribution, including that presently claimed, so that the ink possesses good erasability and sharp color.

As further evidence to support the above position that it is within the skill level of one of ordinary skill in the art to control the colorant particle size within a particular range with few, if any, particles above or below this range, i.e. narrow size distribution, attention is drawn to a state-of-the-art reference, namely Gore (U.S. 5,976,232), which discloses that producing ink with a narrow size distribution of colorant particles, improves the stability of the ink (col.2, lines 6-8).

In light of the motivation for controlling the size of colorant particles disclosed by Yoshioka et al. as well as Gore, it therefore would have been obvious to one of ordinary skill in the art to control the size of the colorant particles in Uzukiwa et al. in order to produce a stable ink with good erasability and sharp color, and thereby arrive at the claimed invention.

9. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzukiwa et al. in view of Yoshioka et al. as applied to claims 1, 4, 9-11, and 13 above, and further in view of either Enami (U.S. 4,471,079) or Koyama (U.S. 5,977,211).

The difference between Uzukiwa et al. in view of Yoshioka et al. and the present claimed invention is the requirement in the claims of a water-soluble polymer such as polysaccharide.

Enami, which is drawn to erasable aqueous ink composition, discloses the use of 0.1-15% water-soluble polymer including polysaccharides such as carboxymethyl cellulose and guar gum (col.9, lines 6 and 10) in order to adjust the viscosity of the ink (col.8, lines 64-65).

Alternatively, Koyama, which is also drawn to an erasable aqueous ink, discloses the use of 0.2-5% water-soluble polymer such as guar gum or xanthan gum (col.3, line 55) in order to

control the permeation of the ink into the paper and further enhance the erasability of the ink (col.3, lines 43-46).

In light of the motivation for using water-soluble polymer disclosed by either Enami or Koyama as described above, it therefore would have been obvious to one of ordinary skill in the art to use such a polymer in the ink of Uzuikawa et al. in order to produce an ink with suitable viscosity and enhanced erasability, and thereby arrive at the claimed invention.

Response to Arguments

10. Applicants' arguments filed 10/29/02 have been fully considered but they are not persuasive.

Specifically, applicants argue that Yoshioka et al. do not disclose or suggest colorant with particle size distribution as presently claimed.

The present claims recite the colorant has mean particle size of 2-7 μm wherein particles having a size of not more than 1.8 μm account for not more than 1.6% by weight of the colorant and wherein particles having size of not less than 7 μm account for not more than 0.5% by weight of the colorant.

On the one hand, given the claim language, i.e. "not more than 1.6%" and not more than 0.5%", it is clear that in one embodiment, the present claims encompass colorant which has mean particle size of 2-7 μm with 0% of the particles having a size of not more than 1.8 μm and 0% of the particles having size of not less than 7 μm . That is, there are no particles present that have particle size less than 2 μm or greater than 7 μm .

Given that Yoshioka et al. disclose colorant that has particle diameter of 2-10 μm which entirely overlaps the presently claimed particle size range it is clear that Yoshioka et al. meet the above described requirements of the present claims.

On the other hand, when the claims read on the embodiment that the colorant does possess amount of particles having a size of not more than 1.8 μm and particles having size of not less than 7 μm , it is agreed that Yoshioka et al. do not explicitly disclose this particle size distribution. However, col.3, lines 48-55 of Yoshioka et al. discloses that if the particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability while if the particle diameter is too large, sharp color is not obtained.

Applicants have submitted a 1.132 declaration on 10/29/02 wherein ink comprising colorant with particle size distribution as presently claimed is compared with ink comprising particle size distribution as set forth in example 2 of Yoshioka et al. It is shown that the ink of the present invention is superior in terms of erasability and ink dischargability.

However, it is the examiner's position that this data does not overcome the rejections of record for the following reasons.

Firstly, as set forth in paragraph 4 above, when the present claims read on the embodiment that 0% of the particles having a size of not more than 1.8 μm and 0% of the particles having size of not less than 7 μm , i.e. there are no particles present that have particle size less than 2 μm or greater than 7 μm , Yoshioka et al. anticipates the present claims.

Secondly, when the present claims read on the embodiment that there are particles present particles having a size of not more than 1.8 μm and having size of not less than 7 μm , the

Art Unit: 1714

declaration is not persuasive given that Yoshioka et al. already disclose the criticality of using few particles with small diameter and few particles of large diameter. That is, as described above, col.3, lines 48-55 of Yoshioka et al. disclose that if the particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability while if the particle diameter is too large, sharp color is not obtained. In light of this teaching, it would have been obvious to one of ordinary skill in the art to choose colorant with particle size distribution as presently claimed, i.e. few particles having a size of not more than $1.8\text{ }\mu\text{m}$ and having size of not less than $7\text{ }\mu\text{m}$. It is significant to note that Yoshioka et al. teach using particles of certain size in order to improve erasability, which is the same motivation as set forth in the 1.132 declaration for using presently claimed particle size distribution. Further, it is noted that example 2 is but one preferred embodiment of Yoshioka et al. It would have been obvious to one of ordinary skill in the art upon a fair reading of the reference of a whole to use colorant with few if any particles having size not more than $2\text{ }\mu\text{m}$ and having size of not less than $7\text{ }\mu\text{m}$ as required in the present claims.

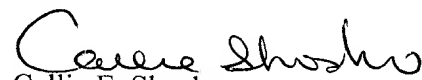
In light of the above, Yoshioka et al. remains a relevant reference against the present claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho

Examiner

Art Unit 1714

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1/13/03